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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *February 6, 2009*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3, 8-13, 18-23, 28-32, 37-42, 47-52 and 57-60* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 8-13, 18-23, 28-32, 37-42, 47-52 and 57-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *November 20, 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This is an office action subsequent to the decision on April 7, 2007 from the Office of

Petitions in granting the renewed petition under 37 CFR 1.137(b) for reviving instant application,

and based on applicant's request for continued examination under 37 CFR 1.114 filed on

February 6, 2009.

2.   Claims 1, 11, 21-22, 30, 40, 50 and 59-60 have been <u>amended</u>.

3.   Claims 4-7, 14-17, 24-27, 33-6, 43-46 and 53-56 have been <u>cancelled</u>.

4.   Claims 1-3, 8-13, 18-23, 28-32, 37-42, 47-52 and 57-60 are currently <u>pending</u>.

5.   The rejection under 35 U.S.C. 112, second paragraph with regard to Claims 5-7, 15-17,

25-27, 34-36, 44-46 and 54-56 (as set forth in paragraphs 15-16 of the Office Action dated

January 25, 2008) is <u>withdrawn</u> in views of applicant's amendments, clarification and/or

cancellation to the claims.

6.   The objection with regard to Claim 30 (as set forth in paragraph 12 of the Office Action

dated January 25, 2008) is <u>maintained</u> as the previously-indicated issue has not yet been

addressed in the amendment in claim 30 specifically (as to in Claims 40, 50 and 59 have the

identical issue, and already been corrected).

Request for Continued Examination (RCE)

7.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on February 6, 2009 has been entered.

Claim Rejections - 35 USC § 112

8.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9.   **Claims 1-3, 8-13, 18-23, 28-32, 37-42, 47-52 and 57-60** are rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as the invention.

10.   Claims 1, 11, 21, 30, 40, 50 and 59, each recites the limitation of *"a relationship"* in

instant claim. Such a limitation has not been *explicitly* depicted with sufficient descriptions in

the instant claim, for properly limiting or clearly defining the scope of *"a relationship"*. The

scope of such a limitation is unable to be clearly determined by one of ordinary skill in the art as

vaguely claimed, which renders the claim scope indefinite. Further clarification is required.

Instant issue also affects the corresponding dependent Claims 2-3, 8-9, 12-13, 18-20, 22-23, 28-

29, 21-32, 37-39, 41-42, 47-49, 51-52 and 57-58.

Response to Arguments

11.   Applicant's arguments filed February 6, 2009 have been fully considered but they are not

persuasive.

12.   With regard to Applicant's remarks from third paragraph of page 14 (in "Remarks") to

first paragraph of page 15, in responding to both the rejections made under 35 U.S.C. §102(b)

and 35 U.S.C. §103(a), Applicant asserts that *"… Morgana discloses and is limited to a trapping*

process that uses diagonal edge detection, in which a target pixel is selected and in which target

pixel is selected and in which two diagonally adjacent pixels are selected. Edge detection is then

performed using these three pixels and conventional trapping is performed … " (see 3rd

paragraph on pg. 14); and further alleged *"Morgana does not disclose identifying a plurality of*

pixel that surround the fist pixel ..., comparing a colorant value of each of the surrounding

pixels with a corresponding colorant value of the first pixel, wherein comparing further

comprises determining difference between a sum of magnitudes of differences between colorant

values of each of the surrounding pixels and corresponding colorant values of the first pixels..."

and etc. *(see 3ʳᵈ paragraph of page 14, and 1ˢᵗ paragraph of page 15).* Applicant's argument(s)

are fully considered, however respectfully found to be not persuasive for at least the following

reasons.

     a.   In response to applicant's argument with relating to the prior art of record,

Morgana and asserting the lack in disclosure of the limitation replicated above, Examiner

respectfully submits, (but not limited to) in Morgana, i.e. Figure 9, S140-S150 and

column 4, lines 27-29, disclose *"In step S140, a first pixel that is diagonally adjacent (or*

"surrounding") to the target pixel is selected. Then, in step S150, one or more image

value attributes (or "colorant value") of the first pixel are determined". In addition, in

column 2, lines 12-18, discloses *"an improved system achieves horizontal, vertical and*

diagonal trapping by looking for edges betweens pixels, such pixels, such as 11, 12, 13,

21, 23, 31, 32 and 33, that are adjacent to the target pixel 22, as shown in Figure 3".

(also see i.e. Figure 5, column 3, lines 6-32). Furthermore, "attributes" are also disclosed,

but not limited to, *"such as: hue, brightness, saturation, and/or the amount of cyan,*

magenta, yellow and black colorant of the pixel..." (see, i.e. column 3, lines 8-10).

Further, with regard to the limitation of *"trapping the first pixel based on a relationship*

between a colorant value of the first pixel and a corresponding colorant value of the

identified controlling pixel", Examiner respectfully submits, in <u>Morgana</u>, i.e. Figure 9, in

Step S160 and column 6, lines 30-33, discloses *"in step S160, a determination is made*

whether each of the one or more image value attributes (or "colorant value") of the

target pixel ("first pixel" in instant claim) and the first pixel ("one of the surrounding

pixels" in instant claim) are the same or are within a preselected range of each other ("a

relationship" in instant claim). In <u>Morgana,</u> it further discloses the usage of "a second

pixel" that is diagonally adjacent (or "surrounding") to the target pixel and perform

proper settings in Steps S190 to S220 as illustrated in Figure 9. Further, Steps S240 and

S250 of Figure 9, and column 4, lines 53-59, discloses *"in Step S240, a determination is*

made" based on *"whether either or both of the first and/or second flags have been set. If*

either or both flags have been set, control proceeds to step S250 (where "conventional

trapping process" are applied). As being disclosed by <u>Morgana,</u> "the conventional

trapping process" are applied based on whether "the first and/or second flags" have been

set, and the condition of whether or not "the first and/or second flags" is further based on

"determination" of whether one or more image value attributes of the first pixel and

target pixel are the same or within the preselected range of each other" (so-called

"relationship"), thus, Examiner re-submits that performing of "the conventional trapping"

is also based the determination process (or "relationship") disclosed in step S160.

Therefore, <u>Morgana</u> clearly anticipates the limitations broadly claimed as indicated and

discussed above, in addition to the ones set forth in the section of the grounds of

rejection, and ones set forth previously.

b.   Additionally, in response to applicant's arguments (marked with underlines), as

also acknowledged and admitted by applicant in the remarks that <u>Morgana</u> discloses *"... a*

trapping process that use <u>diagonal edge detection</u>, in which a target pixel is selected and

in which <u>two diagonally adjacent pixels are selected</u>. Edge detection is then performed

using these three pixels and conventional trapping is performed..." (see 3rd *paragraph on*

pg. 14), and the claim language (i.e. in claim 1) broadly recited with *"identifying <u>a</u>*

<u>plurality</u> of pixels that <u>surround</u> the first pixel" and not yet depicted with any further

limitations (or exclusion) in claim language in performing of such claimed trapping

process which would have excluded the usage of *"diagonal edge detection"* method

disclosed by <u>Morgana</u>; further, disclosure from the prior art of record of *"two diagonally*

adjacent pixels are selected" are readily read on the broadly claimed language of *"a*

plurality of pixel that surround the first pixel" for at least the reasons indicated above and

the reason that claims has not yet further limited with any particular way in surrounding

the first pixel which would have excluding the way disclosed by <u>Morgana</u> in *"two*

diagonally adjacent pixels". Therefore, Examiner respectfully submits that as the claims

are interpreted in light of the specification, however limitations from <u>the specification are</u>

<u>not read into the claims</u>. See *In re Van Geuns,* 988 F.2d 1181, 26 USPQ2d 1057 (Fed.

Cir. 1993). So, applicant is reminded that in order for such (or any specific) limitations

to be considered, the claim languages require to *specifically* recite such limitations in the

claim, otherwise *broadest reasonable* interpretations of the broadly claimed limitations

are deemed to be proper.

Therefore, for at least the reasons set forth above, the rejection made under 35 U.S.C. §102(b)

and 35 U.S.C. §103(a) is remained proper and thus maintained.

13.   With regard to Applicant's remarks from second paragraph on page 15, Examiner

respectfully submits that a general characterization of lacks in consideration on basis of alleged

"repeated pages and pages of rejection verbatim" without any factual basis in reference to the

claimed limitation and the prior arts of record is considered unpersuasive. In addition, Claims 1,

11 and 21 are directed to a method that falls under a same category and further appears to be

drawn to the substantially identical subject matters (i.e. a method for electronic trapping), an

issue of duplicated claims under 37 CFR 1.75 is respectfully reminded, and respectfully

suggested to reformulate the claims into a single independent method claim per category in a

more concise matter. Claims 30, 40, 50 and 59 are all directed to an apparatus that falls under a

same category and further appears to be drawn to the substantially identical subject matters (i.e.

an apparatus for electronic trapping), an issue of duplicated claims under 37 CFR 1.75 is

respectfully reminded, and respectfully suggested to reformulate the claims into a single

independent apparatus claim per category in a more concise matter. Finally, in re applicant's

comments relating to the office action previously mailed, respectfully submits that mere and

general allegation that the claims define a patentable invention without specifically pointing out

how the language of the claims patentably distinguishes them from the references is also

respectfully found to unpersuasive. See 37 CFR 1.111(b).

14.   In re Applicant's remarks on page 16, regarding the rejection made under 35 U.S.C.

§102(b) and §103(a) with regard to the corresponding dependent claims, applicant asserts that

the claims are allowable. Applicant's argument(s) are fully considered, however found to be not

persuasive since the rejection of each of the independent claims is maintained for reasons stated

above and ones set forth previously, the grounds of rejection for each corresponding dependent

claims is also maintained since applicant has not pointed to any further deficiencies of the

rejection.

(The grounds of rejection and/or objection are maintained for at least the responses set forth above,

reasons of record set forth previously, and also replicated and provided in below.)

Claim Objections

15.   Claim 30 is objected to because of the following informalities: there appears to be a

missing of an "article" in front of the word "apparatus" on line 1 of each claim. Appropriate

correction is required. (Maintained as the issue has not been addressed in the reply filed on

February 6, 2009)

Claim Rejections - 35 USC § 102

16.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

17.   **Claims 1-3, 9-13, 19-23, 28-32, 38-42, 48-52 and 57-59** are rejected under 35

U.S.C. 102(b) as being anticipated by Morgana (U.S. Patent No. 6,377,711).

         With regard to claim 1, the claim is drawn to a method for electronically trapping a first

digital color image pixel comprising a plurality of colorant values *(See Morgana, i.e. "Abstract",*

disclose the trapping methods and systems), the method comprising: identifying a plurality of

pixels that surround the first pixel *(i.e. Figure 9, Step S110)*, each of the surrounding pixels

comprising a plurality of colorant values *(i.e. Figure 9, Step S140 & Step S190, "first & second pixels" adjacent (or "surrounding") the target pixel (or "the first pixel" in claim 1))*; comparing a colorant value of each of the surrounding pixels with a corresponding colorant value of the first pixel *(i.e. column 3, lines 6-12, discloses "this invention includes methods and systems that look for edges between pixels by selecting each pixel and comparing the color attributes, such as hue, brightness, saturation and/or the amount of cyan, magenta, yellow and black pixels... the two neighboring pixels are non-colinear with respect to the selected pixel)*; wherein comparing further comprises determining a difference between a sum of magnitudes of differences between colorant values of each of the surrounding pixels and corresponding colorant values of the first pixel, and a magnitude of a sum of differences between colorant values of each of the surrounding pixels and corresponding colorant values of the first pixels *(i.e. Figure 9, Steps S150-S160 and S200-S210; column 1, lines 62-64, disclose "the sum of differences between a density level for a pixel and the densities of the eight adjacent pixels")*; identifying one of the surrounding pixels to control trapping of the first pixel *(i.e. Figure 9, Step S160)*; and trapping the first pixel based on a relationship between a colorant value of the first pixel and a corresponding colorant value of the identified controlling pixel *(i.e. Figure 9, Step S250)*. See the detailed discussion in section of "Response to Arguments" above, also incorporated herein.

   With regard to claim 2, the claim is drawn to the method of claim 1, wherein the surrounding pixels comprise a circular shape *(See <u>Morgana</u>, i.e. Figure 1; the disclosed definition of "approximately circular in shape" from Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5A)*.

With regard to claim 3, the claim is drawn to the method of claim 1, wherein the surrounding pixels comprise an elliptical shape *(See Morgana, i.e. Figure 2; the disclosed definition of "approximately elliptical in shape" from Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5G).*

With regard to claim 9, the claim is drawn to the method of claim 1, wherein the relationship comprises a difference between a colorant value of the identified pixel and a corresponding colorant value of the first pixel *(i.e. Figure 9, S160 & S210).*

With regard to claim 10, the claim is drawn to the method of claim 1, wherein the colorant values comprise cyan, magenta, yellow and black colorants *(i.e. Column 3, lines 1-12, disclose "comparing the color attributes, such as...the amount of cyan, magenta, yellow and black colorants of the pixel...").*

With regard to claim 11, the claim is drawn to a method for electronically trapping a first digital color image pixel comprising a plurality of colorant values *(See Morgana, i.e. "Abstract", disclose the trapping methods and systems),* the method comprising: identifying a plurality of pixels that surround the first pixel *(i.e. Figure 9, Step S110),* each of the surrounding pixels comprising a plurality of colorant values *(i.e. Figure 9, Step S140 & Step S190, "first & second pixels" adjacent (or "surrounding") the target pixel (or "the first pixel" in claim 1));* evaluating a function of a colorant value of each of the surrounding pixels and a corresponding colorant value of the first pixel *(i.e. column 3, lines 6-12, discloses "this invention includes methods and systems that look for edges between pixels by selecting each pixel and comparing the color attributes, such as hue, brightness, saturation and/or the amount of cyan, magenta, yellow and black pixels... the two neighboring pixels are non-colinear with respect to the*

selected pixel); wherein the function determines a difference between a sum of magnitudes of

differences between colorant values of each of the surrounding pixels and corresponding colorant

values of the first pixel, and a magnitude of a sum of differences between colorant values of each

of the surrounding pixels and corresponding colorant values of the first pixels *(i.e. Figure 9,*

Steps S150-S160 and S200-S210; column 1, lines 62-64, disclose "the sum of differences

between a density level for a pixel and the densities of the eight adjacent pixels"); identifying

one of the surrounding pixels to control trapping of the first pixel *(i.e. Figure 9, Step S160)*; and

trapping the first pixel based on a relationship between a colorant value of the first pixel and a

corresponding colorant value of the identified controlling pixel *(i.e. Figure 9, Step S250)*. See the

detailed discussion in section of "Response to Arguments" above, also incorporated herein.

   With regard to claim 12, the claim is drawn to the method of claim 11, wherein the

surrounding pixels comprise a circular shape *(See <u>Morgana</u>, i.e. Figure 1; the disclosed*

definition of "approximately circular in shape" from Applicant's disclosure, Page 9, 2nd

Paragraph, & Figure 5A).

   With regard to claim 13, the claim is drawn to the method of claim 11, wherein the

surrounding pixels comprise an elliptical shape *(See <u>Morgana</u>, i.e. Figure 2; the disclosed*

definition of "approximately elliptical in shape" from Applicant's disclosure, Page 9, 2nd

Paragraph, & Figure 5G).

   With regard to claim 19, the claim is drawn to the method of claim 11, wherein the

relationship comprises a difference between a colorant value of the identified pixel and a

corresponding colorant value of the first pixel *(i.e. Figure 9, S160 & S210)*.

With regard to claim 20, the claim is drawn to the method of claim 11, wherein the

colorant values comprise cyan, magenta, yellow and black colorants *(i.e. Column 3, lines 1-12,*

disclose "comparing the color attributes, such as…the amount of cyan, magenta, yellow and

black colorants of the pixel…").

With regard to claim 21, the claim is drawn to a method for electronically trapping a

first digital color image pixel comprising a plurality of colorant values *(See Morgana, i.e.*

"Abstract", disclose the trapping methods and systems), the method comprising: identifying a

plurality of pixels that surround the first pixel *(i.e. Figure 9, Step S110)*, each of the surrounding

pixels comprising a plurality of colorant values *(i.e. Figure 9, Step S140 & Step S190, "first &*

second pixels" adjacent (or "surrounding") the target pixel (or "the first pixel" in claim 1));

evaluating a function of a colorant value associated with each of the surrounding pixels, each

function value comprising a different between the colorant values of the corresponding

surrounding pixel and corresponding colorant values of the first pixel *(i.e. column 3, lines 6-12,*

discloses "this invention includes methods and systems that look for edges between pixels by

selecting each pixel and comparing the color attributes, such as hue, brightness, saturation

and/or the amount of cyan, magenta, yellow and black pixels… the two neighboring pixels are

non-colinear with respect to the selected pixel); wherein the function determines a difference

between a sum of magnitudes of differences between colorant values of each of the surrounding

pixels and corresponding colorant values of the first pixel, and a magnitude of a sum of

differences between colorant values of each of the surrounding pixels and corresponding colorant

values of the first pixels *(i.e. Figure 9, Steps S150-S160 and S200-S210; column 1, lines 62-64,*

disclose "the sum of differences between a density level for a pixel and the densities of the eight

adjacent pixels"); identifying one of the surrounding pixels to control trapping of the first pixel

(i.e. Figure 9, Step S160); and trapping the first pixel based on a relationship between a colorant

value of the first pixel and a corresponding colorant value of the identified controlling pixel *(i.e.*

Figure 9, Step S250). See the detailed discussion in section of "Response to Arguments" above,

also incorporated herein.

    With regard to claim 22, the claim is drawn to the method of claim 21, wherein the

plurality of surrounding pixels comprise a circular shape *(See Morgana, i.e. Figure 1; the*

disclosed definition of "approximately circular in shape" from Applicant's disclosure, Page 9,

2nd Paragraph, & Figure 5A).

    With regard to claim 23, the claim is drawn to the method of claim 21, wherein the

surrounding pixels comprise an elliptical shape *(See Morgana, i.e. Figure 2; the disclosed*

definition of "approximately elliptical in shape" from Applicant's disclosure, Page 9, 2nd

Paragraph, & Figure 5G).

    With regard to claim 28, the claim is drawn to the method of claim 21, wherein the

relationship comprises a difference between a colorant value of the first pixel and a

corresponding colorant value of the surrounding pixel associated with the maximum adjusted

function value *(i.e. Figure 9, S160 & S210).*

    With regard to claim 29, the claim is drawn to the method of claim 21, wherein the

colorant values comprise cyan, magenta, yellow and black colorants *(i.e. Column 3, lines 1-12,*

disclose "comparing the color attributes, such as…the amount of cyan, magenta, yellow and

black colorants of the pixel…").

With regard to claim 30, the claim is drawn to (an) apparatus for electronically

trapping a first digital color image pixel comprising a plurality of colorant values *(See Morgana,*

i.e. "Abstract", disclose the trapping methods and systems), the apparatus comprising: means for

identifying a plurality of pixels *(i.e. Figure 9, Step S110)* that surround the first pixel, each of the

surrounding pixels comprising a plurality of colorant values *(i.e. Figure 9, Step S140 & Step*

S190, "first & second pixels" adjacent (or "surrounding") the target pixel (or "the first pixel"

in claim 1)); means for comparing a colorant value of each of the surrounding pixels with a

corresponding colorant value of the first pixel *(i.e. column 3, lines 6-12, discloses "this invention*

includes methods and systems that look for edges between pixels by selecting each pixel and

comparing the color attributes, such as hue, brightness, saturation and/or the amount of cyan,

magenta, yellow and black pixels... the two neighboring pixels are non-colinear with respect to

the selected pixel); wherein the comparing means further comprises means for determining a

difference between a sum of magnitudes of differences between colorant values of each of the

surrounding pixels and corresponding colorant values of the first pixel, and a magnitude of a sum

of differences between colorant values of each of the surrounding pixels and corresponding

colorant values of the first pixel *(i.e. Figure 9, Steps S150-S160 and S200-S210; column 1, lines*

62-64, disclose "the sum of differences between a density level for a pixel and the densities of the

eight adjacent pixels"); means for identifying one of the surrounding pixels to control trapping

of the first pixel *(i.e. Figure 9, Step S160)*; and means for trapping the first pixel based on a

relationship between a colorant value of the first pixel and a corresponding colorant value of the

identified controlling pixel *(i.e. Figure 9, Step S250)*. See the detailed discussion in section of

"Response to Arguments" above, also incorporated herein.

With regard to claim 31, the claim is drawn to the apparatus of claim 30, wherein the plurality of surrounding pixels comprise a trapping window that comprises a circular shape *(See Morgana, i.e. Figure 1; the disclosed definition of "approximately circular in shape" from Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5A).*

With regard to claim 32, the claim is drawn to the apparatus of claim 30, wherein the plurality of surrounding pixels comprise a trapping window that comprises an elliptical shape *(See Morgana, i.e. Figure 2; the disclosed definition of "approximately elliptical in shape" from Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5G).*

With regard to claim 38, the claim is drawn to the apparatus of claim 30, wherein the relationship comprises a difference between a colorant value of the identified pixel and a corresponding colorant value of the first pixel. *(i.e. Figure 9, S160 & S210).*

With regard to claim 39, the claim is drawn to the apparatus of claim 30, wherein the colorant values comprise cyan, magenta, yellow and black colorants *(i.e. Column 3, lines 1-12, disclose "comparing the color attributes, such as...the amount of cyan, magenta, yellow and black colorants of the pixel...").*

With regard to claim 40, the claim is drawn to an apparatus for electronically trapping a first digital color image pixel comprising a plurality of colorant values *(See Morgana, i.e. "Abstract", disclose the trapping methods and systems),* the apparatus comprising: means for identifying a plurality of pixels *(i.e. Figure 9, Step S110)* that surround the first pixel, each of the surrounding pixels comprising a plurality of colorant values *(i.e. Figure 9, Step S140 & Step S190, "first & second pixels" adjacent (or "surrounding") the target pixel (or "the first pixel" in claim 1));* means for evaluating a function of colorant value of each of surrounding pixels and

a corresponding colorant value of the first pixel *(i.e. column 3, lines 6-12, discloses "this invention includes methods and systems that look for edges between pixels by selecting each pixel and comparing the color attributes, such as hue, brightness, saturation and/or the amount of cyan, magenta, yellow and black pixels... the two neighboring pixels are non-colinear with respect to the selected pixel)*; wherein the comparing means further comprises means for determining a difference between a sum of magnitudes of differences between colorant values of each of the surrounding pixels and corresponding colorant values of the first pixel, and a magnitude of a sum of differences between colorant values of each of the surrounding pixels and corresponding colorant values of the first pixel *(i.e. Figure 9, Steps S150-S160 and S200-S210; column 1, lines 62-64, disclose "the sum of differences between a density level for a pixel and the densities of the eight adjacent pixels")*; means for identifying one of the surrounding pixels to control trapping of the first pixel *(i.e. Figure 9, Step S160)*; and means for trapping the first pixel based on a relationship between a colorant value of the first pixel and a corresponding colorant value of the identified controlling pixel *(i.e. Figure 9, Step S250)*. See the detailed discussion in section of "Response to Arguments" above, also incorporated herein.

With regard to claim 41, the claim is drawn to the apparatus of claim 40, wherein the plurality of surrounding pixels comprise a trapping window that comprises a circular shape *(See Morgana, i.e. Figure 1; the disclosed definition of "approximately circular in shape" from Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5A)*.

With regard to claim 42, the claim is drawn to the apparatus of claim 40, wherein the plurality of surrounding pixels comprise a trapping window that comprises an elliptical shape

(See Morgana, i.e. Figure 2; the disclosed definition of "approximately elliptical in shape" from Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5G).

With regard to claim 48, the claim is drawn to the apparatus of claim 40, wherein the relationship comprises a difference between a colorant value of the identified pixel and a corresponding colorant value of the first pixel. *(i.e. Figure 9, S160 & S210).*

With regard to claim 49, the claim is drawn to the apparatus of claim 40, wherein the colorant values comprise cyan, magenta, yellow and black colorants *(i.e. Column 3, lines 1-12, disclose "comparing the color attributes, such as…the amount of cyan, magenta, yellow and black colorants of the pixel…").*

With regard to claim 50, the claim is drawn to an apparatus for electronically trapping a first digital color image pixel comprising a plurality of colorant values *(See Morgana, i.e. "Abstract", disclose the trapping methods and systems)*, the apparatus comprising: means for identifying a plurality of pixels *(i.e. Figure 9, Step S110)* that surround the first pixel, each of the surrounding pixels comprising a plurality of colorant values *(i.e. Figure 9, Step S140 & Step S190, "first & second pixels" adjacent (or "surrounding") the target pixel (or "the first pixel" in claim 1))*; means for evaluating a function of colorant value associated with each of the surrounding pixels, each function value comprising a difference between the colorant value of the corresponding surrounding pixel and corresponding colorant values of the first pixel *(i.e. column 3, lines 6-12, discloses "this invention includes methods and systems that look for edges between pixels by selecting each pixel and comparing the color attributes, such as hue, brightness, saturation and/or the amount of cyan, magenta, yellow and black pixels… the two neighboring pixels are non-colinear with respect to the selected pixel)*; wherein the comparing

means further comprises means for determining a difference between a sum of magnitudes of

differences between colorant values of each of the surrounding pixels and corresponding colorant

values of the first pixel, and a magnitude of a sum of differences between colorant values of each

of the surrounding pixels and corresponding colorant values of the first pixel *(i.e. Figure 9, Steps*

S150-S160 and S200-S210; column 1, lines 62-64, disclose "the sum of differences between a

density level for a pixel and the densities of the eight adjacent pixels"); means for identifying

one of the surrounding pixels to control trapping of the first pixel *(i.e. Figure 9, Step S160)*; and

means for trapping the first pixel based on a relationship between a colorant value of the first

pixel and a corresponding colorant value of the identified controlling pixel *(i.e. Figure 9, Step*

S250). See the detailed discussion in section of "Response to Arguments" above, also

incorporated herein.

With regard to claim 51, the claim is drawn to the apparatus of claim 50, wherein the

plurality of surrounding pixels comprise a trapping window that comprises a circular shape *(See*

Morgana, i.e. Figure 1; the disclosed definition of "approximately circular in shape" from

Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5A).

With regard to claim 52, the claim is drawn to the apparatus of claim 50, wherein the

plurality of surrounding pixels comprise a trapping window that comprises an elliptical shape

(See Morgana, i.e. Figure 2; the disclosed definition of "approximately elliptical in shape" from

Applicant's disclosure, Page 9, 2nd Paragraph, & Figure 5G).

With regard to claim 57, the claim is drawn to the apparatus of claim 50, wherein the

relationship comprises a difference between a colorant value of the first pixel and a

corresponding colorant value of the surrounding pixel associated with the maximum adjusted function value *(i.e. Figure 9, S160 & S210)*.

With regard to claim 58, the claim is drawn to the apparatus of claim 50, wherein the colorant values comprise cyan, magenta, yellow and black colorants *(i.e. Column 3, lines 1-12, disclose "comparing the color attributes, such as…the amount of cyan, magenta, yellow and black colorants of the pixel…")*.

With regard to claim 59, the claim is drawn to an apparatus for electronically trapping a first digital color image pixel comprising a plurality of colorant values, the apparatus comprising: a memory adapted to store a plurality of pixels that surround the first pixel, each of the surrounding pixels comprising a plurality of colorant values *(See Morgana, i.e. column 8, lines 40-41)*; a first logic element adapted to sum magnitudes of the differences associated with each of the surrounding pixels and subtract therefrom a magnitude of a sum of the differences associated with each of the surrounding pixels *(See Morgana, i.e. column 8, lines 46-48)*; a second logic element adapted to determine the surrounding pixel associated with the sum from the first logic element; and a third logic element adapted to trap the first pixel based on a relationship between a colorant value of the first pixel and a corresponding colorant value of the surrounding pixel determined by the second logic element *(See Morgana, i.e. column 8, lines 49-53)*. See the detailed discussion in section of "Response to Arguments" above, also incorporated herein.

Claim Rejections - 35 USC § 103

18.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19.   **Claims 8, 18, 37 and 47** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgana as applied to claims above, and further in view of Geurts et al. (U.S. Pub. No. 2001/0055130).

        With regard to claim 8, the claim is drawn to the method of claim 1, further comprising adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel.

        Morgana does not *explicitly* disclose the limitation of adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel.

        However, Geurts et al. disclose the limitation of "comparing the distances of the pixel from the trapping edge according to a distance measure with a provided measure indicative of the distance of the pixel from any edge of the image to determine …including setting a trap color for the trap pixel" *(See Geurts et al., i.e. Paragraph [0018]).*

        Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Morgana to include the limitation of adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel taught by Geurts et al. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Morgana by the teachings of Geurts et al. to include the limitation of adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first

pixel taught by <u>Geurts et al.</u>, for purposes of "rapidly and automatically determining trap

shapes…" *(i.e. Paragraph [0013])* and allow the user "easily be able to vary the direction-

dependent trapping distances" *(i.e. Paragraph [0015])*.

With regard to claim 18, the claim is drawn to the method of claim 11, further

comprising adjusting the compared colorant values of each of the surrounding pixels based on a

corresponding distance between the surrounding pixel and the first pixel.

<u>Morgana</u> does not *explicitly* disclose the limitation of adjusting the compared colorant

values of each of the surrounding pixels based on a corresponding distance between the

surrounding pixel and the first pixel.

However, <u>Geurts et al.</u> disclose the limitation of "comparing the distances of the pixel

from the trapping edge according to a distance measure with a provided measure indicative of

the distance of the pixel from any edge of the image to determine …including setting a trap color

for the trap pixel" *(See <u>Geurts et al.</u>, i.e. Paragraph [0018])*.

Therefore it would have been obvious to one of ordinary skill in the art at the time of

invention to have modified <u>Morgana</u> to include the limitation of adjusting the compared colorant

values of each of the surrounding pixels based on a corresponding distance between the

surrounding pixel and the first pixel taught by <u>Geurts et al</u>. It would have been obvious to one of

ordinary skill in the art at the time of invention to have modified <u>Morgana</u> by the teachings of

<u>Geurts et al.</u> to include the limitation of adjusting the compared colorant values of each of the

surrounding pixels based on a corresponding distance between the surrounding pixel and the first

pixel taught by <u>Geurts et al.</u>, for purposes of "rapidly and automatically determining trap

shapes…" *(i.e. Paragraph [0013])* and allow the user "easily be able to vary the direction-dependent trapping distances" *(i.e. Paragraph [0015])*.

With regard to claim 37, the claim is drawn to the apparatus of claim 30, further comprising adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel.

Morgana does not *explicitly* disclose the limitation of adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel.

However, Geurts et al. disclose the limitation of "comparing the distances of the pixel from the trapping edge according to a distance measure with a provided measure indicative of the distance of the pixel from any edge of the image to determine …including setting a trap color for the trap pixel" *(See Geurts et al., i.e. Paragraph [0018])*.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Morgana to include the limitation of adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel taught by Geurts et al. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Morgana by the teachings of Geurts et al. to include the limitation of adjusting the compared colorant values of each of the surrounding pixels based on a corresponding distance between the surrounding pixel and the first pixel taught by Geurts et al., for purposes of "rapidly and automatically determining trap shapes…" *(i.e. Paragraph [0013])* and allow the user "easily be able to vary the direction-dependent trapping distances" *(i.e. Paragraph [0015])*.

With regard to claim 47, the claim is drawn to the apparatus of claim 30, further

comprising adjusting the compared colorant values of each of the surrounding pixels based on a

corresponding distance between the surrounding pixel and the first pixel.

Morgana does not *explicitly* disclose the limitation of adjusting the compared colorant

values of each of the surrounding pixels based on a corresponding distance between the

surrounding pixel and the first pixel.

However, Geurts et al. disclose the limitation of "comparing the distances of the pixel

from the trapping edge according to a distance measure with a provided measure indicative of

the distance of the pixel from any edge of the image to determine …including setting a trap color

for the trap pixel" *(See Geurts et al., i.e. Paragraph [0018]).*

Therefore it would have been obvious to one of ordinary skill in the art at the time of

invention to have modified Morgana to include the limitation of adjusting the compared colorant

values of each of the surrounding pixels based on a corresponding distance between the

surrounding pixel and the first pixel taught by Geurts et al. It would have been obvious to one of

ordinary skill in the art at the time of invention to have modified Morgana by the teachings of

Geurts et al. to include the limitation of adjusting the compared colorant values of each of the

surrounding pixels based on a corresponding distance between the surrounding pixel and the first

pixel taught by Geurts et al., for purposes of "rapidly and automatically determining trap

shapes…" *(i.e. Paragraph [0013])* and allow the user "easily be able to vary the direction-

dependent trapping distances" *(i.e. Paragraph [0015]).*

20.   **Claim 60** is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgana as

applied to claims 1-59 and 61-64 above, and further in view of Nhu (U.S. Patent No. 5,848,224).

With regard to claim 60, the claim is drawn to the apparatus of claim 59, wherein the first, second, and third logic elements comprise *pipelined logic elements*.

Morgana does not *explicitly* disclose the limitation of "pipelined logic elements".

However, Nhu discloses the limitation of the concept of "concurrent processing" or "pipelining", used to "reduce overall processing time" and "maximize throughput" *(See Nhu, i.e. column 3, lines 14-16; column 10, lines 35-37).*

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Morgana to include the limitation of "pipelined logic elements" taught by Nhu. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Morgana by the teachings of Nhu to include the limitation of "pipelined logic elements" taught by Nhu, for the purposes of "reduce overall processing time" and "maximize throughput" *(See Nhu, i.e. column 3, lines 14-16).*

Conclusion

21.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

    A. Weinholz et al. (U.S. Patent No. 6,795,214) disclose the method generates trapping contours in a print page, specifically taking into consideration of the neighboring pixels of the target pixel.

    B. Ebner (U.S. Pub. No. 2003/0128377) discloses a method for black trapping and under print processing.

C. Munger et al. (U.S. Pub. No. 2003/0063302) discloses the testing means and process for controlling offset and digital printing, specifically disclose the *trapping patterns being round and elliptical shapes.*

D. Klassen (U.S. Patent No. 6,345,117) discloses a method for automatic trap selection for correcting for separation mis-registration in color printing.

E. Kohn (U.S. Pub. No. 2003/0011796) discloses` a method for producing traps in print page.

F. Yoshino et al. (U.S. Patent No. 6,141,462) disclose an invention carries out a desired image processing while *using adjoining relationship between image parts, specifically the desired image processing being "trapping process".*

G. Bloomberg (U.S. Patent No. 5,581,667) discloses an electronic trapping system for digitized text and images.

H. Deutsch et al. (U.S. Patent No. 5,542,052) disclose an invention relates to applying traps to a printed page specified in a PDL format.

I. Rumph et al. (U.S. Patent No. 6,844,942) disclose a method for trapping raster data in a run-length encoded form.

J. Hawksworth et al. (U.S. Patent No. 6,813,042) disclose digital prepress trapping tools.

K. Speck (U.S. Patent No. 6,654,145) discloses a device and method for preparing document for multicolor reproduction.

L. Estrada et al. (U.S. Patent No. 6,970,271) disclose d device independent trap color specification.

M. <u>Lane et al.</u> (U.S. Patent No. 7,116,821) disclose an invention relates to color trapping for

an image forming apparatus.

22.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jacky X. Zheng whose telephone number is (571) 270-1122. The

examiner can *normally* be reached on Monday-Friday, 8:30 a.m. - 5 p.m., Alt. Friday Off.

23.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Twyler L. Haskins can be reached on (571) 272-7406. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

24.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacky X. Zheng/
Examiner, Art Unit: 2625
April 16, 2009

/Twyler L. Haskins/
Supervisory Patent Examiner, Art Unit 2625